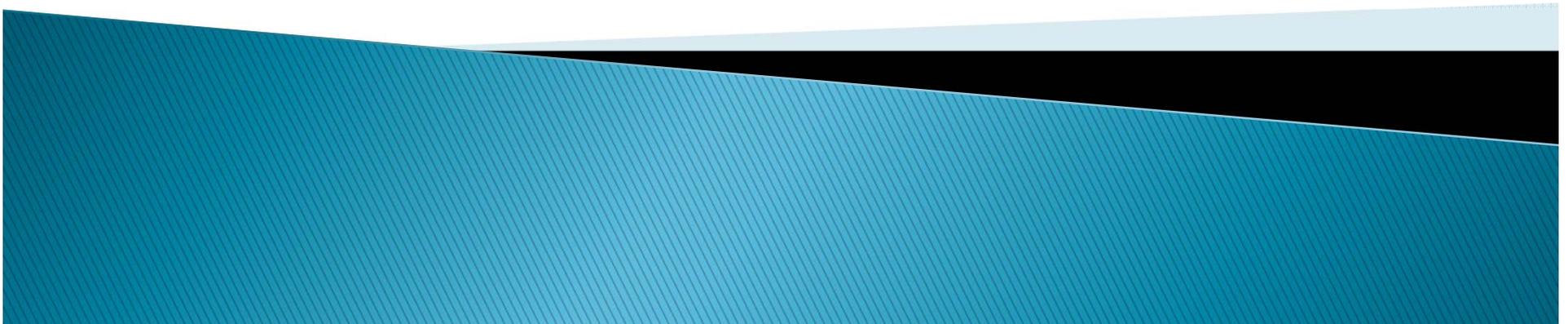


Ground Water Quality Criteria Stakeholder Workgroup

September 28, 2016



Meeting Agenda

- ▶ Welcome, Introductions and Background
- ▶ Evaluating Ground Water Quality Criteria and Potential Updates
 - Process for Deriving and Updating Ground Water Quality Criteria
 - Potential Updates Identified by NJDEP
 - Additional Information from Stakeholders
 - Discussion
- ▶ Wrap up and Next Steps

Background

- ▶ Stakeholder process convened on April 11, 2016, to discuss possible amendments to the Ground Water Quality Standards Rules, N.J.A.C. 7:9C
- ▶ Three technical workgroups formed:
 - Updates to Health-Based Criteria (Class II ground waters)
 - Updates to Practical Quantitation Levels
 - Ground Water Classifications and Designated Uses

Background, cont'd

- ▶ Today's workgroup meeting will focus on possible updates to the health-based criteria
- ▶ Additional workgroup meetings will be held to discuss other issues related to the Ground Water Quality Standards Rules.

Purpose of Today's Meeting

- ▶ To share the basis and results of the Department's preliminary reevaluation of the existing Class II criteria
- ▶ To obtain feedback from stakeholders on potential updates to the health-based criteria that would inform the rulemaking process
- ▶ To gather additional information about specific constituents from stakeholders with knowledge/expertise in the subject

What You Should Know About Today's Meeting

- ▶ This is an informal, technical meeting to discuss information related to the derivation and potential update of numeric ground water quality criteria in Class II ground waters.
- ▶ The information presented today is preliminary and for discussion purposes only and should not be considered as draft, proposed, or final criteria.

Deriving Health-Based Criteria

- ▶ Human health-based criteria are based on chronic (lifetime) exposure to contaminated ground water via the ingestion pathway
 - ▶ Carcinogens: One in one million (10^{-6}) lifetime risk level
 - ▶ Non-carcinogens: No adverse effect from ingestion for a lifetime
- ▶ Total of 209 health-based criteria being re-evaluated
 - ▶ 186 Specific Criteria (out of 191 specific criteria)
 - ▶ 23 Interim Specific Criteria (out of 33 interim criteria)
 - ▶ Does not include health-based criteria for conventional pollutants like nitrite, ammonia, etc.

Deriving Health-Based Criteria, cont'd

- ▶ GWQS rules (N.J.A.C. 7:9C-1.7(c)4) establish formulas for deriving criteria
- ▶ Formulas include toxicity factors and default exposure assumptions
 - Based on lifetime exposure to constituent
 - Cancer slope factor and 10^{-6} risk level for carcinogens
 - Reference dose (RfD) for non-carcinogens and carcinogens with no carcinogenic slope factor
 - Default assumptions for body weight and daily water consumption
- ▶ Cancer slope factors and RfDs from IRIS, if available, are used as default toxicity factors

To Derive Health-Based Criteria for Carcinogens

Criterion ($\mu\text{g/L}$) =

$$\frac{\text{Upper bound excess cancer risk} \times \text{Average adult weight}}{\text{Carcinogenic Slope Factor} \times \text{Assumed Daily Water Consumption}} \times \text{Conversion Factor}^*$$

Where:

10^{-6} = Risk Level

70 kg = default body weight of average person

2 L/day = default daily drinking water intake

*Appropriate conversion factors are used to develop criteria in $\mu\text{g/L}$

To Derive Health-Based Criteria for Non-Carcinogens

Criterion ($\mu\text{g/L}$)=

$$\frac{\text{Reference Dose} \times \text{Average Adult Weight} \times \text{Conversion}^* \times \text{Relative Source Contribution}}{\text{Assumed Daily Water Consumption} \times \text{Uncertainty Factor}}$$

Where the default values are:

70 kg = default body weight of average person

2 L/day = default daily drinking water intake

20 % = default relative Source Contribution

*Appropriate conversion factors are used to develop criteria in $\mu\text{g/L}$

Process for Possible Criteria Updates

- ▶ Changes to toxicity factors or default exposure assumptions in these formulas may result in a change to the criterion
- ▶ USEPA IRIS database was reviewed for updated Reference Doses or cancer slope factors
- ▶ Information from the following sources that could result in other changes to toxicity factors or exposure assumptions was also reviewed:

Basis for Possible Criteria Updates

- USEPA Updated Ambient Water Quality Criteria for the Protection of Human Health (adopted 2015)
- USEPA Updated Exposure Factors Handbook (2011)
- Proposed amendments to the New Jersey Remediation Standards at N.J.A.C. 7:26D
- Recommendations for new or updated New Jersey Health-based MCLs

Preliminary Findings

- ▶ Based on re-evaluation of 209 health-based criteria, we identified:
 - 42 potential criteria updates:
 - 26 specific criteria, based on new information from sources listed in the previous slide
 - 15 specific and 1 interim specific based on updates in IRIS that have not been applied (yet) by other standards programs (e.g., SRP)

Preliminary Findings, cont'd

- ▶ Note that an updated criterion will not necessarily result in a change to the GWQS.
 - GWQS is the higher of the (updated) criterion and the (updated) PQL
 - Need to evaluate updates to both criteria and PQLs to identify potential updates to GWQS.
- ▶ PQL updates will be discussed at the PQL workgroup meeting in November.

Discussion

- ▶ Are there questions about the criteria derivation process?
- ▶ Are there questions about the sources of information used to derive the potential updates presented today?
- ▶ Is other information available that should be considered in deriving criteria updates?

Wrap Up and Next Steps

Meeting Schedule

PQL Workgroup

November 2, 2016, 1:00 – 3:00 PM

DEP 401 2ND FL CONF ROOM-2E601

Ground Water Classifications and Designated Uses Workgroup

November 28, 2016, 2:00 – 4:00 PM

3rd floor large conference room (3E002)

Questions?

Thank You For Your Participation